

FSA Modernization Partner

United States Department of Education

Federal Student Aid



Technical Architecture Application Maintenance Services Report July 2002

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1 Introduction

1.1 Executive Summary

The *Technical Architecture Application Maintenance Report: July 2002 for FY 2002* summarizes the Integrated Technical Architecture (ITA) team's tasks related to resolving issues associated with the maintenance of FSA applications in production, for the specified month. The ITA provides a standardized, reusable infrastructure for enabling business capabilities within the FSA application community. The long-term vision of the ITA is to provide an integrated, enterprise-wide technical architecture that will enable FSA to reduce the number of custom-built applications that are difficult and costly to update and maintain.

2 FSA Applications Maintained by the ITA in Production

- FAFSA – the Free Application for Federal Student Aid on the web is an application used by college students and schools to submit financial applications via the Internet
- IFAP – Information for Financial Professionals web site is an electronic library for financial aid professionals containing publications, regulations, and guidance regarding the administration of Title IV Federal Student Aid Programs
- FSA Intranet – is an internal portal, for FSA employees, that provides general information about FSA, FSA Channels, and the Department of Education. The portal also houses information about FSA standards
- Schools Portal – is a homepage for Schools-specific information with links, headlines and calendar function frequented by the schools. The site is customizable and can store bookmarks
- eCampus Based – FSA initiated the Institution or Campus Based (CB) Modernization project. The intent of the project is to modernize the existing CB application architecture; migrating from the current platform (COBOL, IBM Mainframe, VSAM data store) to a relational database platform (Oracle), developing a web-based user interface (WebSphere), along with additional software functionality enhancements. This modernized solution is named eCB (electronic Campus Based). The main objective of the modernization effort is to offer institutions and CB staff an integrated and intuitive solution that increases access to information and self-service capabilities supporting FSA's strategic goals
- Financial Partners Data Mart – provides executive information and decision support capabilities around several key business functions for both the Guaranty Agencies (GAs) and the Lenders. The Data Mart initiative provides infrastructure within the channel and provides initial Risk Management, Customer Relationship Management, Compliance Management, and Portfolio Management functionality related to the thirty-six Guaranty Agencies and the approximately four thousand lenders



- CFO Data Mart – provides reporting capabilities to the Chief Financial Office implementing MicroStrategy and Informatica
- Exit Counseling – utilizes WebSphere and MQ Series to access NSLDS mainframe for specific information
- Students.gov - an award-winning interagency portal sponsored by FSA that provides access to a wide range of public and private information and services targeted towards prospective and current post-secondary education students and their parents
- Program Guidance – provides a central location for resources needed by the Program Development Division within FSA. The application provides documents and profiles to identify relevant information quickly for members of this division.
- Students & Financial Partners Portal – Portals were developed for the Students and Financial Partners channels to provide a central location for information needed by students and financial partners.

3 ITA Products

- IBM HTTP Server – web server
- IBM WebSphere – Java application server
- Network Dispatcher – cluster load balance and failover
- Interwoven – content management application
- Informatica – mainframe data tool that converts mainframe data for Oracle so reports can be generated by MicroStrategy
- Autonomy – search engine
- Viador / JRun – Viador is the product or application for the Schools Portal and JRun is the application server

4 Issue Matrix

The following matrix details the issues encountered by the ITA team from July 1, 2002 to July 31, 2002. The matrix is organized chronologically by application name and date to illustrate the team's progress in resolving the majority of issues and the instances in which the team directed its efforts to seek resolution for an issue. Subsequently, the matrix consists of the following categories: name of the application connected to an issue, description of the issue, steps taken by the ITA team to resolve an issue, the issue's level of priority ranging from high to medium to low, the issue's status whether new, in progress, or closed, and the issue's resolution date. Some issues span a greater time period and closure may not have been possible before the deadline of this report.



5 Issue Resolution Log

Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution Date
July 1, 2002	Program Guidance	Program Guidance requested the ability to deploy content from Interwoven to production.	ITA configured the ability for Program Guidance to deploy content to production.	High	Closed	July 1, 2002
July 1, 2002 – July 31, 2002	FAFSA	WebSphere is recreating the table in the session database when it restarts under a heavy load. This issue has been observed three times in the production environment.	Tested IBM's temporary fix to the Session Creation problem. This fix does not allow WAS to drop the table since it already exists. The fix also prints extra debug messages, which explains why WAS drops the session table. This fix is now installed on all WAS servers. Recreation of this problem to identify the reasons for WebSphere's creation of the table has not been successful. Scenarios are still being investigated to determine root cause of this problem.	Medium	Ongoing	N/A
July 1, 2002 – July 31, 2002	FAFSA	ITA team was tasked with transitioning FAFSA Operations tasks to the VDC team. These tasks involve maintenance and configuration of WebSphere and Network Dispatcher.	Ongoing meetings with CSC have been established to transition all tasks involved with FAFSA operations. This task was finalized March 15, 2002. The ITA continues to support the CSC operations team when needed. The ITA team continues to support CSC personnel in the FAFSA production environment.	Low	Ongoing	N/A
July 1, 2002 – July 31, 2002	FAFSA	Weekly FAFSA production calls have been scheduled to address issues.	The ITA team has been consistently represented at these meetings and ensures that issues are being resolved promptly.	Low	Ongoing	N/A



Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution Date
July 1, 2002 – July 31, 2002	FAFSA	Current FAFSA production contains excess number of servers to support the off-peak environment. The steady state configuration has been determined and a plan has been initiated to achieve that environment.	<p>The ITA team developed a proposal for an environment that would support FAFSA off-peak requirements. This configuration consisted of existing servers with a few excess servers. These extra servers are to be utilized for an HP performance test environment. The schedule has been agreed upon and change requests are pending to decommission servers in the production environment.</p> <p>The ITA team developed a process and worked with CSC and IBM to remove all of the requested servers from the production environment. There is one additional WebSphere server to be removed from the environment. Once that is complete, the four excess servers will be re-networked to the test network to provide a performance test environment for FAFSA 7.0. The servers still reside in production and are scheduled to be moved out in the beginning of July.</p>	Low	Closed	July 8, 2002



Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution Date
July 1, 2002 – July 31, 2002	FAFSA	Web server processes are failing to respond to requests from I.H.S and causing a single CPU to peak at 100% utilization. The application is not impacted, but the server performance is skewed.	<p>This is an ongoing problem. IBM has recommended an upgrade to I.H.S, but this must be tested throughout each environment. As a temporary solution, the process that is hanging the CPU is 'killed' so that performance resumes normally. A schedule to upgrade the version of I.H.S will be presented. This upgrade must be executed and tested in each environment before it can be moved into production.</p> <p>There has been an error detected with the fix provided by IBM. We are currently working with IBM support to fix the installation. IBM has provided another fix for this problem. It has been tested in the development environment and now must be tested in the staging environment before going into production. We are still waiting on the staging server to be built by CSC</p>	Low	Ongoing	N/A
July 1, 2002 – July 31, 2002	FAFSA	Operations have reported that the FAFSA WebSphere configuration takes some time to initialize if all Servers are rebooted together.	The WAS admin database was only setup for a maximum of 100 connections from the WAS cluster by the CSC admin. ITA has requested that this be increased to 500. These initial attempts to resolve this problem have not been successful. The ITA team is currently working with IBM to try to recreate this problem outside of the production environment. A window in production will need to be established to test some scenarios. We are still working on a window to execute tests to isolate the problem.	Medium	Ongoing	N/A



Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution Date
July 1, 2002 – July 31, 2002	FAFSA	FAFSA is experiencing periodic issues of clones hanging and not accepting connections from the web servers. This causes web servers to back up and eventually cause delays to users of FAFSA.	It was discovered that CSC implemented some Wily instrumentation two days before this problem began to occur. This included different drivers for FAFSA to access its datasources. The ITA spent several days on conference calls to troubleshoot and attempt to fix this issue. Wily has been backed out of the FAFSA environment to determine the root cause of this error. IBM, Wily, CSC, and ITA have worked together on resolving this issue. The next step is to change the FAFSA email configuration to utilize the local server instead of making a direct connection to the Dept of Ed email servers. This change was implemented on July 2.	High	Closed	July 7, 2002
July 1, 2002 – July 31, 2002	FAFSA	The FAFSA demo production environment needs to move in to a production system.	As a first step, we are moving the environment's databases to the production database server. We are also exploring possible final locations for this site.	Medium	Ongoing	N/A
July 1, 2002 – July 31, 2002	FAFSA	When the session database goes down for the FAFSA application, WebSphere sends an infinite number of requests to the database server to attempt updates to sessions and create new sessions.	IBM has provided an efix to limit the number of tries to connect to the session database to two before it stops trying. This efix is included in WebSphere 3.5.6. The FAFSA environments will be upgraded to this new version during the month of August.	Medium	Ongoing	N/A
July 15, 2002	FAFSA	Deployments through Interwoven to the development environment (hpl3) were failing.	The ITA determined that the Interwoven OpenDeploy receiver process on the target server, hpl3, had stopped. The ITA contacted CSC to restart the process.	High	Closed	July 15, 2002



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Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution Date
July 3, 2002	FAFSA	An issue has been identified with Network Dispatcher. When the backup server restarts while the primary is running, a bad MAC address is put to the firewall and it hangs there until the arp table is refreshed.	The ITA team has been working with IBM to recreate this problem in their environments. An efix has been provided, and now the ITA team is waiting for Akamai performance testing to complete so this fix can be tested.	Medium	Ongoing	N/A
May 6, 2002	Schools Portal	The Schools Portal business owner has requested a cleanup of the production database for the Schools Portal to eliminate all unneeded user ID's.	<p>The Viador admin application was not functioning properly inside the VDC firewall. The ITA worked with Viador support to attempt to get the admin functionality to work correctly. Manual scripts were provided by Viador to delete user ID's from the database. This task was then transitioned to the application operations team.</p> <p>During the initial run a problem was encountered with Viador. A new plan must be established and executed to minimize impact to production application. The operations team is working with the business owner to determine plan of action.</p>	Low	Ongoing	N/A
July 18, 2002	Schools Portal	Deployments through Interwoven to the production environment (su35e8) were failing.	The ITA determined that the Interwoven OpenDeploy receiver process on the target server, su35e8, had stopped. The ITA contacted CSC to restart the process.	High	Closed	July 19, 2002



Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution Date
July 11, 2002	Intranet	Intranet would like to be able to search Interwoven-generated XML files through Autonomy.	The ITA configured search capability for the Intranet. While Autonomy is recognizing the Interwoven-generated XML files, the custom field search is not working correctly. The ITA has opened a ticket with Autonomy support and is working to find a resolution to this problem	Medium	Ongoing	N/A
July 22, 2002	IFAP, Program Guidance, Students and FP Portals, Intranet	Content deployments through Interwoven to the production environment (su35e10) were failing intermittently.	The ITA determined that the target filesystem on the production server had reached 100% capacity. Some unnecessary documents were removed from the filesystem to create additional space.	High	Closed	July 23, 2002
July 26, 2002	IFAP, Program Guidance, Students and FP Portals, Intranet	Content deployments through Interwoven to the production environment (su35e10 and su35e12) were failing.	The ITA determined that the Interwoven OpenDeploy receiver process on the target servers, su35e10 and su35e12, had stopped. The ITA contacted CSC to restart the processes on both servers. This is an outstanding trouble ticket with Interwoven support. We are working with Interwoven to resolve this issue.	High	Closed	July 26, 2002
July 26, 2002	IFAP & Schools Portal Disaster Recovery	IFAP & Schools Portal required deployment capability to the disaster recovery server for the disaster recover test scheduled for July 30.	The ITA configured a disaster recovery deployment option for the IFAP team.	Medium	Closed	July 26, 2002



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Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution Date
July 29, 2002 – July 30, 2002	IFAP & Schools Portal Disaster Recovery	CSC requested the assistance of the ITA team during the execution of the disaster recovery tests for these applications within the ITA.	The ITA provided phone support during the execution of the disaster recovery test. Several problems were experienced with WebSphere and Viador and the ITA provided recommendations to resolve issues. The ITA to ensure the tests were valid also provided several hours of preparation assistance.	Medium	Closed	July 30, 2002
July 22, 2002	FP Portal	FP Portal indicated that their Organizational Chart is not returning as an Autonomy search result when performing a search on specific names.	ITA determined that the Organization Chart is being recognized by Autonomy and returned as a result for all text inputs except the names that are part of the chart diagram. ITA has opened a ticket with Autonomy support and is working to determine if this problem can be resolved.	Medium	Ongoing	N/A
July 24, 2002	Students Portal	Searches performed on studentaid.ed.gov were not returning any results.	The Students Portal search database within Autonomy was reinitialized. HTTPFetch was restarted on su35e7 and the database repopulated with the correct results.	Medium	Closed	July 25, 2002
July 9, 2002	FP & Students Portal	CSC noticed the Portals application server was taking up 25% of the CPU on one of the production servers.	CSC contacted the ITA team, and the ITA provided troubleshooting assistance for a few hours to identify the issue. It appeared that the application lost contact to the monitoring tool from one server. This was causing the CPU to be more utilized. The application server was restarted and connectivity was regained. The CPU returned to normal utilization.	Low	Closed	July 9, 2002



6 WebSphere Upgrade

The following is a table outlines the upgrade to WebSphere from 3.5.3 to 3.5.5 in the SUN production environment.

Enhancements		
WebSphere upgrade to 3.5.5 scheduled for Mid August	WebSphere	In order to take of advantage of additional functionality, the ITA team is scheduling an upgrade to WebSphere in all SUN environments. This upgrade will take place over the month of July and will include all environments and applications. Communication will be sent out as each environment is upgraded and tested to validate all applications. All environments have been upgraded except for production. This upgrade is scheduled to be completed by the middle of August. The change has been submitted to CSC and is being scheduled in their process.

7 Informatica Upgrade

The following is a table outlines the upgrade to Informatica from 1.7 to 5.1.2 in the SUN production environment.

Enhancements		
Upgrade to Informatica scheduled for Mid July	Informatica	In order to take of advantage of additional functionality and remain in a supported environment, the ITA team is scheduling an upgrade to Informatica. This upgrade will take place over the month of June into July and will include all environments and applications. Communication will be sent out as each environment is upgraded and tested to validate all applications. This upgrade has been completed and accepted by all application teams.



8 Solaris Upgrade

The following is a table outlines the upgrade to Solaris from 2.6 to 2.8 on all SUN servers.

Enhancements		
Solaris upgrade is scheduled to occur over next several months	Solaris	In order to take of advantage of additional functionality, the ITA team is scheduling an upgrade to Solaris on all SUN servers. This upgrade will take place over the next several months and will include all environments and applications. Communication will be sent out as each environment is upgraded and tested to validate all applications. A completion date will be provided once the project is further along.